

in 1890 was succeeded by M. Snellen and he in turn by Prof. C. H. Wind as director in chief. In 1897 the institute was removed from Utrecht to its suburb De Bilt. According to a late number of *Minerva* the recent organization was as follows:

Director in chief—C. H. Wind.

Section directors—Dr. H. Ekama, Dr. J. P. Van der Stok.

Assistant directors—E. B. J. Kluit, Dr. C. M. A. Hartman.

Secretary—E. L. Olland.

Director of the branch in Amsterdam—L. Roosenburg.

Director of the branch in Rotterdam—A. E. Arkenbout-Schokker.

Under date of February 13, 1905, Prof. C. H. Wind announced that he had resigned his position as director in chief of the Royal Meteorological Institute of Holland, and that by a royal decree of February 13, 1905, Dr. E. van Everdingen is provisionally charged with the general management of the institute.

In October, 1905, Dr. Maurits Snellen announced that he should resign as director of the section in terrestrial magnetism and seismology of the Royal Meteorological Institute of the Netherlands, and that his future address will be Apeldoorn, Netherlands.

A LARGE METEOR.

A very large meteor is reported to have fallen in the water of Duck Thoroughfare near Atlantic City on the coast of New Jersey on October 3, 1905. Two fishermen stoutly maintain that the meteor fell within twenty feet of their boat, and it is said that many have been fishing for it with oyster tongs. On the other hand, this same meteor was seen rushing rapidly above many portions of Long Island during the night of the 3d-4th. The idea that it fell into the water on the coast of New Jersey is most likely to be an entire mistake. The Editor has known of cases in which persons ignorant of astronomy, and suddenly frightened by the appearance of a bright meteor overhead, have actually dodged or run to shelter, thinking it was coming straight for them; but the fact is that such objects are many miles away, and most frequently burn up entirely or split into many small fragments before they reach the earth; in fact, in many cases they pass entirely through the atmosphere and out into space.

It is very desirable that the public in general should endeavor to assist in the progress of our knowledge of meteors. Anyone may do this by merely recording and sending to the Editor a careful note as to the location of the apparent path of such a bright meteor. One has merely to say that it started at a certain altitude and azimuth, or at a certain bearing of the compass, and disappeared at a certain other bearing and apparent angular altitude; or one may say it started near a certain star, passed by certain other stars, and disappeared, always giving the time as accurately as possible. In some cases a most accurate record has been made by setting up stakes on the ground or making marks on the floor to show just where the shadow of a building or window was thrown. Do this promptly and let some surveyor measure the bearings for you. Observations of such bearings and altitudes made at different stations give us the basis for computing with much exactness the true distance and motion of the meteor. Perhaps 100 illustrations of such calculations may be found in the literature of science. Several such will be found in past numbers of the *MONTHLY WEATHER REVIEW*. See Volume XXII, page 128; Volume XXV, pages 56, 57, and 261.

Mr. William A. Carlson, of Victoria, Ill., writing under date of October 10, 1905, says:

I wish to call attention to a large meteor which I saw fall on September 26, 1905. It came from the southwest and traveled at an angle of 60° from where I stood. It traveled thence to the northeast until it came directly east of me and then it started to fall; when it had fallen to an

angle of 20° it exploded into three pieces; one piece fell to the south and one piece fell to the north, but the last and largest piece fell straight down. The meteor was much larger than the full moon.

WEATHER BUREAU MEN AS EDUCATORS.

Prof. A. G. McAdie, official in charge, San Francisco, Cal., reports that he attended the Thirty-first Annual Convention of Fruit Growers at Santa Rosa, Cal., and read a paper upon the influence of weather on crops, at the evening session of December 7, before an audience of about 300 fruit growers and representatives of the U. S. Department of Agriculture, the State University, the State Agricultural Society, and other bodies.

Mr. C. W. Ling, Assistant Observer, Havre, Mont., reports that on November 21, 1905, by invitation of the county superintendent of schools, he addressed the Teachers Institute of Chouteau County, Mont., on the work of the Weather Bureau.

By invitation of the official in charge many of the teachers visited the Weather Bureau office, and the meteorological instruments were explained to them.

Mr. I. M. Cline, District Forecaster, New Orleans, La., reports that Mr. H. F. Alciatore, First Assistant at that station, gave a lecture in the office on November 14, to a class of boys from the Live Oak Public School. The lecture lasted about one hour and included an explanation of the meteorological instruments used by the Weather Bureau and an account of the weather map and its use in forecasting.

Mr. J. P. Slaughter, Observer, Pueblo, Colo., reports that on October 24, 4 teachers and 31 pupils of the Fountain School of that city, visited the office and had the instruments, the weather map, and methods of forecasting explained to them.

Dr. O. L. Fassig, Research Director, reports that on December 4, 1905, he delivered a lecture on the climate and weather of Baltimore, one of a series of twenty lectures for the teachers of the Baltimore public schools, on the natural history of the environs of Baltimore. The course is being given under the auspices of the Woman's College of Baltimore. There were present about 300 subscribers to the course.

Mr. M. L. Fuller, Assistant Observer in charge, Charles City, Iowa, reports that the physical geography classes of the high school and of Charles City College, about 45 students in all, have visited the office in three sections, during the month of November. Each section received a 45 minute explanation of the station equipment and work.

Mr. Fuller has made an arrangement to give addresses on elementary meteorology and the work of the Weather Bureau before both the local high school and Charles City College.

Mr. N. B. Conger, Inspector and Marine Agent, Detroit, Mich., addressed the Detroit Engineering Society, by invitation, on the evening of November 24, 1905. The subject was the Weather Bureau and its work. Special attention was given to the data furnished by the Weather Bureau to engineers, the compilation of temperature and precipitation data, and the manner of issuing and distributing special warnings.

Mr. W. P. Stewart, Assistant Observer in charge, Escanaba, Mich., reports that the class in physics of the Escanaba High School visited the office in two sections on December 11 and 12 and were instructed in the construction and use of barometers, and the distribution of atmospheric pressure, including the formation and movement of areas of high and low pressure and their relation to the weather.

Mr. J. Warren Smith, Section Director, Columbus, Ohio, reports that on November 8, 1905, he delivered a half hour illustrated lecture at the *Pan Handle Machine Shops* in Columbus during the noon hour. The lecture was given at the request of the local branch of the Pennsylvania Railway Young Men's Christian Association.

The Chief of Bureau has received from Mr. L. M. Tarr, Local Forecaster, New Haven, Conn., a letter written by President Arthur T. Hadley, of Yale University, in which President Hadley expresses high appreciation of the work that Mr. Tarr is doing for the students of meteorology in Yale.

Mr. U. G. Purssell, Local Forecaster, Erie, Pa., gave an address before the Erie High School on December 19, 1905, on the organization, work, and practical benefits of the Weather Bureau. The audience was composed of the principal, teachers, and nearly seven hundred students.

At Albany, N. Y., a class of eight young ladies from St. Agnes's Academy visited the Weather Bureau office and Mr. George Todd, Local Forecaster, explained to them the instrumental equipment, charts, and map making.

During November and December, 1905, Mr. J. L. Bartlett, Observer, Madison, Wis., delivered six lectures on meteorological subjects, illustrated with the stereopticon, before various classes and organizations of the University of Wisconsin.

Mr. T. S. Outram, Section Director, Minneapolis, Minn., addressed the class in physical geography of the Minnesota State University, December 9, 1905, on the law of storms and methods of practical forecasting.

SPECIAL METEOROLOGICAL STATIONS FOR SPECIAL STUDIES.

A correspondent who is now studying botany at the Desert Botanical Laboratory of the Carnegie Institute, at Tucson, Ariz., writes as follows from his temporary location at Witch Creek, San Diego County, Cal., $116^{\circ} 40'$ west and $33^{\circ} 5'$ north, on the southwest slope of the San Jacinto Mountains, and about 50 miles northeast of San Diego:

I wonder if the Weather Bureau would not establish a few stations in this mountain country for observation of temperature, humidity, etc.; in short, make arrangements whereby the botanist, when he attempts to tell about the relations between plant societies and climatic conditions, may know what the conditions are. It would at the same time be a great boon to the health seeker. Two years ago I called on the official in charge of the San Diego station for the purpose of finding out something about humidity in the back country here. I was suffering greatly from rheumatism and needed the information, but there was absolutely none to be had. Following such advice as I could get, I came up here and found a good climate—no thanks to the Weather Bureau!

My notion is that if a good volunteer observer at each of a half dozen stations kept these records they would in a few years prove invaluable.

As soon as you get back a few miles from the sea, conditions begin to change, and by the time you reach Witch Creek, 50 miles from San Diego, you are in a climate not so dry as the desert, but intermediate between that and the climate of the coast. Suppose you had, right along this stage line, so that they could easily be supervised, observers at Ramona, 1000 feet; Witch Creek, 2400 feet; Julian, 4000 feet; and Banner, just over the ridge down in the desert; and one or two others, say at Mesa Grande (a fine fruit region), who would conscientiously keep these records—I believe that they would pay a large return.

I asked our postmaster here this morning if he had a rain gage. He answered with some pride that he had and that he always kept a record of the rainfall. The gage is a kerosene oil can. He said he would be glad to keep records as a volunteer observer if instruments and blanks for reports were furnished him. I have no doubt he would take much interest in the matter and, according to his lights, do it with scrupulous care. A gentleman at Mesa Grande, some miles from here, wants to

keep such records, and went so far as to make application to the San Diego station a while ago for an outfit and instructions. The matter seems not to have gone any further. In a region like this, where the climate changes every few miles, there is great need of definite records. Such a chain of stations at these different altitudes and distances from the sea, beginning with San Diego and ending at Banner, would give data that it seems to me are absolutely necessary if we attempt to account for plant distribution and habits. They will not tell all, for the historical factor is to be reckoned with, but every substantial fact well established does throw a ray of light into the darkness.

I shall be here a month or two before going back to Tucson, and if the idea seems feasible I should be very glad indeed to help our postmaster here to get started with an actual rain gage and such other apparatus as it may seem best to provide him with; and I think I could help some others in the same way if it were decided to establish any more voluntary stations. I have had no special opportunities for doing this work myself, but I know what the botanists want. At present I am keeping records of relative humidity with Lambrecht's polymeter, but I presume some other form of psychrometer would be less liable to get out of order in the hands of an inexperienced observer.

A request like the above, from one entirely devoted to a special research, appeals very strongly to the Chief of Bureau and to all who wish to see every form of meteorological research properly supported. This is, however, only one of perhaps hundreds of similar requests received every year, and as Congress has made no special provision for anything more than the necessary increase of Weather Bureau forecast work and expenses, they must all be most regretfully denied.

The weather has an intimate relation to everything that goes on at the earth's surface; seismology, geology, botany, agriculture, milling, navigation, hygienics, commerce, astronomy represent only a small portion of the wide range of subjects that are forced upon the attention of the Weather Bureau. A few years ago it was said that the \$10,000,000 given by Carnegie for scientific research would suffice, but the first year's experience showed that it could all be used up on any one of several branches of research. Similarly with the Weather Bureau—its resources are now wholly occupied in taking care of weather and river forecasts and crop reports. There are other great fields of human industry calling for assistance, but for the present it will be impracticable for the Chief to incur the expense of special stations that may be needed by special investigators. It was with great regret that he was obliged to abandon the expensive mountain stations on Mount Washington and Pikes Peak, which had contributed so much to the knowledge of the upper air. As our first duty is the study of the atmosphere, with a view to forecasting the weather, it is probable that the prosecution of mountain and balloon work is a more imperative duty than the study of dry desert regions. If the latter could contribute to our knowledge of the mechanics of the atmosphere to any such degree as do the highest mountains, then they might have a similar demand upon our attention. For the present, however, it would seem that the botanist and the sanitarian must look elsewhere for funds to maintain a few observers in the localities that specially interest them. The primary and fundamental duty of the Weather Bureau is the development of our knowledge of atmospheric motions and disturbances—not the average climate, but the daily weather.

With regard to the apparatus, the important instrument is that combination of wet-bulb and dry-bulb thermometers known as the psychrometer, and especially for real accuracy the whirled psychrometer in an instrument shelter as used by the Weather Bureau, or the sling psychrometer, or Doctor Craig's combination of shelter and sling, which is portable and less expensive. The Germans use the ventilated psychrometer invented by Assmann and manufactured by Fuess in Berlin. This instrument is highly convenient and very accurate. But the simplest instrument means an expense of probably at least \$6 for the two thermometers, since they must be of the best